Appendix C. **Source and Accuracy of the Estimates**

SOURCE OF DATA

The SIPP universe is the noninstitutionalized resident population living in the United States. This population includes persons living in group quarters, such as dormitories, rooming houses, and religious group dwellings. Not eligible to be in the survey are crew members of merchant vessels, Armed Forces personnel living in military barracks, and institutionalized persons, such as correctional facility inmates and nursing home residents. Also not eligible are, United States citizens residing abroad. Foreign visitors who work or attend school in this country and their families are eligible; all others are not eligible. With the exceptions noted above, field representatives interview eligible persons who are at least 15 years of age at the time of the interview.

The 1987, 1990, and 1991 panel SIPP samples are located in 230 Primary Sampling Units (PSUs) each consisting of a county or a group of contiguous counties. Within these PSUs, we systematically selected expected clusters of two living quarters (LQs) from lists of addresses prepared for the 1980 decennial census to form the bulk of the sample. To account for LQs built within each of the sample areas after the 1980 census, we selected a sample containing clusters of four LQs from permits issued for construction of residential LQs up until shortly before the beginning of the panel.

In jurisdictions that have incomplete addresses or don't issue building permits, we sampled small land areas, listed expected clusters of four LQs, and then subsampled. In addition, we selected a sample of LQs from a supplemental frame that included LQs identified as missed in the 1980 census.

The 1990 panel differs from other panels as a result of oversampling for low income households. The panel contains an oversample of Black headed households, Hispanic headed households and female headed family households with no spouse present and living with relatives.

The first interviews occurred during February, March, April, or May of the panel year. Interviews for approximately one-fourth of the sample took place in each of these months creating four subsamples. The four subsamples distribute interviewing workloads and are called rotation groups. One round of interviewing for the sample covering all four rotations is called a wave. For the remainder of the panel, interviews for each person occurred every four months. At each interview the reference period was the 4 months preceding the interview month.

Occupants of about 93 percent of all eligible living quarters participated in the first interview of the panel. For later interviews, field representatives interviewed only original sample persons (those in Wave 1 sample households and interviewed in Wave 1) and persons living with them. The Bureau automatically designated all first wave noninterviewed households as noninterviews for all subsequent interviews.

For the 1987 panel, field representatives conducted personal interviews for all waves. For the 1990 panel, field representatives conducted personal interviews in the first, through sixth waves only. For the 1991 panel, field representatives conducted personal interviews for the first, second, third and sixth waves only. The remaining interviews for 1990 and 1991 panel were designated telephone interviews. Even though headquarters designates a 1990+ interview as personal or telephone the field representatives may conduct the other type depending on the circumstances of a case.

For personal interviews we followed original sample persons if they moved to a new address, unless the new address was more than 100 miles from a SIPP sample area. If the original sample persons moved farther than 100 miles from a SIPP sample area, we attempted telephone interviews. When original sample persons moved to remote parts of the country and were unreachable by telephone, moved without leaving a forwarding address, or refused the interview, additional noninterviews resulted.

We classified a person as interviewed or noninterviewed for the entire panel and both calendar years based on the following definitions. Interviewed sample persons are

- those for whom self or proxy response were obtained for each reference month of all eight (seven) interviews for the 1990 (1987) panel, and all three interviews for each calendar year; or

- those for whom self or proxy response were obtained for the first reference month of the interview period and for each later reference month until they were known to have died or moved to an ineligible address (foreign living quarters, institutions, or military barracks).

Noninterviewed persons result when neither a self nor proxy response is obtainable for one or more reference months of either the eight (seven) interviews for the 1990 (1987) panel or the three interviews for each calendar year; (but not because they died or moved to an ineligible address).

Details on interview-status classification are in "Weighting of Persons for SIPP Longitudinal Tabulations" (paper by Judkins, Hubble, Dorsch, McMillen and Ernst in the *1984 Proceedings of the Survey Research Methods Section, American Statistical Association)*. Details on patterns of nonresponse are in "Weighting Adjustment for Partial Nonresponse in the 1984 SIPP Panel" (paper by Lepkowski, Kalton and Kasprzyk in the *1989 Proceedings of the Survey Research Methods Section, American Statistical Association).*

Table C-1. **Sample Size by Panel/CY and Interview Status (Persons)**

Panel/CY	Initially eligible	Classified as interviewed	Person nonresponse rate (percent)
87P	33,100	24,400	26
87CY	33,100	26,400	20
90P	61,700	43,700	29
90CY	61,700	49,600	20
91CY	67,400	47,500	30

Some respondents did not respond to some of the questions. Therefore, the overall nonresponse rate for some items, especially sensitive income and money related items, is higher than the person nonresponse rate. For more discussion of nonresponse see the *Quality Profile for the Survey of Income and Program Participation*, May 1990, by T. Jabine, K. King, and R. Petroni, available from Customer Services, Data Users Services Division (301-763-6100).

This report also includes some tabulations drawn from cross-sectional files of the 1991 panel. Person nonresponse rates are not available for these cross-sectional files. However, household sample size and nonresponse rates are in table C-2.

ESTIMATION

We used several stages of weight adjustments in the estimation procedure to derive the SIPP longitudinal person weights. We gave each person a base weight equal to the inverse of his/her probability of selection. We applied two noninterview adjustment factors. One adjusted the weights of interviewed persons in interviewed households to account for households which were eligible for the sample but which field representatives could not interview at the first interview. The

Table C-2. **Household Sample Size by Month and Interview Status**

Month	Eligible	Interviewed	Noninterviewed	Nonresponse rate percent[1]
Nov '91	4,000	3,400	600	15
Dec '91	4,100	3,400	600	16
Jan '92	4,000	3,400	600	15
Feb '92	4,100	3,300	800	19
Mar '91	4,100	3,400	700	17
Apr '91	4,100	3,400	700	17

[1]Due to rounding of all numbers to the nearest 100, there are some inconsistencies. We calculated the percentage using unrounded numbers.

second compensated for person noninterviews occurring in subsequent interviews. The Bureau used complex techniques to adjust the weights for nonresponse, but the success of these techniques in avoiding bias is unknown. For more detail on noninterview adjustment for longitudinal estimates see *Nonresponse Adjustment Methods for Demographic Surveys at the U.S. Bureau of the Census*, November 1988, Working paper 8823, by R. Singh and R. Petroni.

We applied another factor to each interviewed person's weight to account for the SIPP sample areas not having the same population distribution as the strata they are from.

We performed an additional stage of adjustment to longitudinal person weights to reduce the mean square error of the survey estimates. We accomplished this by ratio adjusting the sample estimates to agree with monthly Current Population Survey (CPS) type estimates of the civilian (and some military) noninstitutional population of the United States at the national level by demographic characteristics including age, sex, and race, as of the specified control date. For the 1987 Panel, the control date is March 1, 1987. The 1987 calendar year and 1988 calendar year control dates are January 1, 1987 and January 1, 1988, respectively. For the 1990 Panel, the control date is March 1, 1990 . The 1990 calendar year and 1991 calendar year control dates are January 1, 1990 and January 1, 1991, respectively. The Bureau brought CPS estimates by age, sex, and race into agreement with adjusted estimates from the 1980 decennial census. Adjustments to the 1980 decennial census estimates reflect births, deaths, immigration, emigration, and changes in the Armed Forces since 1980. Also, we controlled SIPP estimates to independent Hispanic controls.

ACCURACY OF ESTIMATES

We base SIPP estimates on a sample. The sample estimates may differ somewhat from the values obtained from administering a complete census using the same questionnaire, instructions, and enumerators. The difference occurs because a sample survey estimate is subject to two types of errors: nonsampling and sampling. We can provide estimates of the magnitude of the SIPP sampling error, but this is not true of nonsampling error. The next few sections describe SIPP nonsampling error sources, followed by a discussion of sampling error, its estimation, and its use in data analysis.

Nonsampling Variability. We attribute nonsampling errors to many sources, they include:

- inability to obtain information about all cases in the sample,
- definitional difficulties,
- differences in the interpretation of questions,
- inability or unwillingness on the part of the respondents to provide correct information,
- inability to recall information,
- errors made in collection (e.g. recording or coding the data),
- errors made in processing the data,
- errors made in estimating values for missing data,
- biases resulting from the differing recall periods caused by the interviewing pattern used,
- undercoverage.

We used quality control and edit procedures to reduce errors made by respondents, coders and interviewers. More detailed discussions of the existence and control of nonsampling errors in the SIPP are in the *SIPP Quality Profile.*

Undercoverage in SIPP resulted from missed living quarters and missed persons within sample households. It is known that undercoverage varies with age, race, and sex. Generally, undercoverage is larger for males than for females and larger for Blacks than for Non-blacks. Ratio estimation to independent age-race-sex population controls partially corrects for the bias due to survey undercoverage. However, biases exist in the estimates when persons in missed households or missed persons in interviewed households have characteristics different from those of interviewed persons in the same age-race-sex group. Further, we didn't adjust the independent population controls for undercoverage in the Census.

A common measure of survey coverage is the coverage ratio, the estimated population before ratio adjustment divided by the independent population control. Table 3 shows CPS coverage ratios for age-sex-race groups for 1992. The CPS coverage ratios can exhibit some variability from month to month, but these are a typical set of coverage ratios. Other Census Bureau household surveys like the SIPP experience similar coverage.

Comparability with Other Estimates. Exercise caution when comparing data from this report with data from other SIPP publications or with data from other

Table C-3. **1992 CPS Coverage Ratios**

Age	Non-Black		Black		All persons		
	Males	Females	Males	Females	Males	Females	Total
0-14	0.963	0.965	0.927	0.926	0.957	0.959	0.958
15	0.962	0.949	0.899	0.919	0.952	0.944	0.948
16	0.969	0.936	0.923	0.907	0.962	0.932	0.947
17	0.981	0.975	0.945	0.862	0.975	0.957	0.966
18	0.939	0.926	0.883	0.846	0.930	0.913	0.922
19	0.860	0.872	0.754	0.801	0.844	0.861	0.853
20-24	0.913	0.927	0.734	0.832	0.889	0.913	0.901
25-26	0.927	0.940	0.688	0.877	0.897	0.931	0.914
27-29	0.910	0.954	0.707	0.864	0.885	0.941	0.914
30-34	0.893	0.948	0.691	0.883	0.870	0.939	0.905
35-39	0.910	0.949	0.763	0.899	0.895	0.942	0.919
40-44	0.929	0.951	0.824	0.906	0.919	0.946	0.933
45-49	0.956	0.966	0.903	0.956	0.951	0.965	0.958
50-54	0.940	0.961	0.807	0.877	0.927	0.951	0.940
55-59	0.944	0.941	0.826	0.825	0.932	0.928	0.930
60-62	0.965	0.956	0.792	0.850	0.948	0.944	0.946
63-64	0.905	0.907	0.669	0.872	0.884	0.903	0.894
65-67	0.935	0.979	0.783	0.875	0.921	0.969	0.947
68-69	0.925	0.942	0.789	0.831	0.913	0.931	0.923
70-74	0.926	0.993	0.856	1.014	0.920	0.995	0.962
75-99	0.977	0.989	0.764	0.912	0.961	0.983	0.975
15+	0.928	0.953	0.782	0.883	0.912	0.944	0.929
0+	0.936	0.955	0.827	0.895	0.923	0.947	0.935

surveys. Comparability problems are from varying seasonal patterns for many characteristics, different nonsampling errors, and different concepts and procedures. Refer to the *SIPP Quality Profile* for known differences with data from other sources and further discussion.

Sampling Variability. Standard errors indicate the magnitude of the sampling error. They also partially measure the effect of some nonsampling errors in response and enumeration, but do not measure any systematic biases in the data. The standard errors mostly measure the variations that occurred by chance because we surveyed a sample rather than the entire population.

USES AND COMPUTATION OF STANDARD ERRORS

Confidence Intervals. The sample estimate and its standard error enable one to construct confidence intervals, ranges that would include the average result of all possible samples with a known probability. For example, if we selected all possible samples and surveyed each of these under essentially the same conditions and with the same sample design, and if we calculated an estimate and its standard error from each sample, then:

1. Approximately 90 percent of the intervals from 1.645 standard errors below the estimate to 1.645 standard errors above the estimate would include the average result of all possible samples.

2. Approximately 95 percent of the intervals from 1.960 standard errors below the estimate to 1.960 standard errors above the estimate would include the average result of all possible samples.

The average estimate derived from all possible samples is or is not contained in any particular computed interval. However, for a particular sample, one can say with a specified confidence that the confidence interval includes the average estimate derived from all possible samples.

Hypothesis Testing. One may also use standard errors for hypothesis testing. Hypothesis testing is a procedure for distinguishing between population characteristics using sample estimates. The most common type of hypothesis tested is 1) the population characteristics are identical versus 2) they are different. One can perform tests at various levels of significance, where a level of significance is the probability of concluding that the characteristics are different when, in fact, they are identical.

Unless noted otherwise, all statements of comparison in the report passed a hypothesis test at the 0.10 level of significance or better. This means that, for differences cited in the report, the estimated absolute difference between parameters is greater than 1.645 times the standard error of the difference.

To perform the most common test, compute the difference X_A - X_B, where X_A and X_B are sample estimates of the characteristics of interest. A later section explains how to derive an estimate of the standard error of the difference X_A - X_B. Let that standard error be s_{DIFF}. If X_A - X_B is between -1.645 times s_{DIFF} and +1.645 times s_{DIFF}, no conclusion about the characteristics is justified at the 10 percent significance level. If, on the other hand, X_A - X_B is smaller than -1.645 times s_{DIFF} or larger than +1.645 times s_{DIFF}, the observed difference is significant at the 10 percent level. In this event, it is commonly accepted practice to say that the characteristics are different. Of course, sometimes this conclusion will be wrong. When the characteristics are, in fact, the same, there is a 10 percent chance of concluding that they are different.

Note that as we perform more tests, more erroneous significant differences will occur. For example, at the 10 percent significance level, if we perform 100 independent hypothesis tests in which there are no real differences, it is likely that about 10 erroneous differences will occur. Therefore, interpret the significance of any single test cautiously.

Note Concerning Small Estimates and Small Differences. We show summary measures in the report only when the base is 200,000 or greater. Because of the large standard errors involved, there is little chance that estimates will reveal useful information when computed on a base smaller than 200,000. Also, nonsampling error in one or more of the small number of cases providing the estimate can cause large relative error in that particular estimate. We show estimated numbers, however, even though the relative standard errors of these numbers are larger than those for the corresponding percentages. We provide smaller estimates primarily to permit such combinations of the categories as serve each user's needs. Therefore, be careful in the interpretation of small differences since even a small amount of nonsampling error can cause a borderline difference to appear significant or not, thus distorting a seemingly valid hypothesis test.

Standard Error Parameters and Tables and Their Use. Most SIPP estimates have greater standard errors than those obtained through a simple random sample because we sampled clusters of living quarters for the SIPP. To derive standard errors at a moderate cost and applicable to a wide variety of estimates, we made a number of approximations. We grouped estimates with similar standard error behavior and developed two parameters (denoted "a" and "b") to approximate the standard error behavior of each group of estimates. Because the actual standard error behavior was not identical for all estimates within a group, the standard errors we computed from these parameters provide an indication of the order of magnitude of the standard error for any specific estimate. These "a" and "b" parameters vary by characteristic and by demographic subgroup to which the estimate applies. These tables provide the "a" and "b" parameters which are used for the following panel estimates:

- Table C-4: 1987 Longitudinal
- Table C-5: Calendar Year 1987 Longitudinal
- Table C-6: 1990 Longitudinal
- Table C-7: Calendar Year 1990 Longitudinal
- Table C-8: Calendar Year 1991 Longitudinal
- Table C-9: 1991 Cross-Sectional

For users who wish further simplification, we also provide general standard errors in tables C-10 and C-11. Note that you need to adjust these standard errors by a factor from tables C-4 through C-9. The standard errors resulting from this simplified approach are less accurate. Methods for using these parameters and tables for computation of standard errors are given in the following sections.

Standard Errors of Estimated Numbers. There are two ways to compute the approximate standard error, s_x, of an estimated number shown in this report. The first uses the formula

$$s_x = fs \qquad (1)$$

where f is a factor from tables C-4 through C-9, and s is the standard error of the estimate obtained by interpolation from table C-10. Alternatively, approximate s_x using the formula,

$$s_x = \sqrt{ax^2 + bx} \qquad (2)$$

from which we calculated the standard errors in table 10. Here x is the size of the estimate and a and b are the parameters in tables C-4 through C-9 associated with the particular type of characteristic. Use of formula 2 will provide more accurate results than the use of formula 1. When calculating standard errors for numbers from crosstabulations involving different characteristics, use the factor or set of parameters for the characteristic which will give the largest standard error.

Illustration. **SIPP** estimates given in table B of the report show that persons with 1 to 6 months of health insurance coverage for the 1990 longitudinal panel is 5,659,000. The appropriate "a" and "b" parameters are obtained from table C-6. They are a = -0.0000985 and b = 22,724, respectively. Using formula (2), the approximated standard error is

$$\sqrt{(-0.0000985)(5{,}659{,}000)^2 + (22{,}724)(5{,}659{,}000)} = 354{,}000$$

The 90-percent confidence interval as shown by the data is from 5,077,000 to 6,241,000. Therefore, a conclusion that the average derived from all possible samples lies within a range computed in this way would be correct for roughly 90-percent of all samples.

Using formula (1), the appropriate "f" factor (f=1.00) from table C-6 and the standard error of the estimate by interpolation using table C-10, the approximate standard error is

$$s_x = (1.00)(352{,}000) = 352{,}000$$

The 90-percent confidence interval as shown by the data is from 5,080,000 to 6,238,000.

Standard Errors of Estimated Percentages. The reliability of an estimated percentage, computed using sample data for both numerator and denominator, depends on the size of the percentage and its base. When the numerator and denominator of the percentage have different parameters, use the parameter (or appropriate factor) from tables C-4 through C-9 indicated by the numerator.

Calculate the approximate standard error, $s_{(x,p)}$, of an estimated percentage p using the formula

$$s_{(x,p)} = fs \qquad (3)$$

where p is the percentage of persons/families/households with a particular characteristic such as the percent of persons owning their own homes.

In this formula, f is the appropriate "f" factor from tables C-4 through C-9, and s is the standard error of the estimate obtained by interpolation from table C-11.

Alternatively, approximate it by the formula:

$$s_{(x,p)} = \sqrt{\frac{b}{x}(p)(100-p)} \qquad (4)$$

from which we calculated the standard errors in table C-11. Here x is the total number of persons, families, households, or unrelated individuals in the base of the percentage, p is the percentage (0 . p . 100), and b is the "b" parameter in tables C-4 through C-9 associated with the characteristic in the numerator of the percentage. Use of this formula will give more accurate results than use of formula (3) above.

Illustration. Table A of the report shows that 73.4 percent of Blacks were covered by health insurance for 12 months in calendar year 1991. The base of this percentage (x) is 30,342,000. The appropriate "b" parameter and "f" factor from table C-8 and the appropriate general standard error found by interpolation from table C-11 are

$$b = 5{,}652, f = 0.50\ s = 1.20$$

Using formula (3), the approximate standard error is

$$s_{(x,p)} = (0.50)(1.20) = 0.60\%.$$

Using formula (4), the approximate standard error is

$$s_{(x,p)} = \sqrt{\frac{5{,}652}{30{,}342{,}000} 73.4\%(100\% - 73.4\%)} = 0.60\%$$

The 90-percent confidence interval shown by these data is 72.4 to 74.4 percent.

Standard Error of a Difference. The standard error of a difference between two sample estimates, x and y, is approximately equal to

$$s_{(x-y)} = \sqrt{s_x^2 + s_y^2 - 2rs_xs_y} \qquad (5)$$

where s_x and s_y are the standard errors of the estimates x and y and r is the correlation coefficient between the characteristics estimated by x and y. The estimates can be numbers, averages, percents, ratios, etc. Underestimates or overestimates of standard error of differences result if the estimated correlation coefficient is overestimated or underestimated, respectively. In this report, we assume r is 0.774 when comparing estimates from the 1990 panel with estimates from the 1990 calendar year of the 1990 panel. For all other estimates we assume r is 0.

Illustration. Table B of the report shows 26.6 percent of males and 24.0 percent of females received health insurance coverage for less than 32 months of the 1990 panel. The bases of the percentages for males and females are 113,681,000 and 122,131, 000 respectively. The standard errors for these percentages are computed using formula 4, to be .6 percent and .6 percent. Assuming that these two estimates are not correlated, the standard error of the estimated difference of 2.6 percentage points is

$$s_{(x-y)} = \sqrt{(0.6\%)^2 + (0.6\%)^2} = 0.8\%$$

Suppose that it is desired to test at the 10-percent significance level whether the percentage of males who received health insurance coverage for less than 32 months was different than the percentage of females who received health insurance coverage for less than 32 months. To perform the test, compare the difference of 2.6 percent to the product 1.645 x 0.8 = 0.48%. Since the difference is greater than 1.645 times the standard error of the difference, the data show that the two sex groups are significantly different at the 10-percent significance level.

Table C-4. **SIPP Generalized Variance Parameters for Estimates Using Panel Weights From the 1987 Longitudinal Panel File**

Characteristics	a	b	f
PERSONS			
Total or White			
All characteristics			
Both sexes	-0.0001654	38,147	1.30
Male	-0.0020159	38,147	1.30
Female	-0.0003203	38,147	1.30
Black			
All characteristics			
Both sexes	-0.0005115	14,113	0.79
Male	-0.0010991	14,113	0.79
Female	-0.0009565	14,113	0.79

Table C-5. **SIPP Generalized Variance Parameters for Estimates Using 1987 Calendar Year Weights From the 1987 Longitudinal Panel File**

Characteristics	a	b	f
Persons			
Total or White			
All characteristics			
Both sexes	-0.0001543	35,577	1.25
Male	-0.0003191	35,577	1.25
Female	-0.0002987	35,577	1.25
Black			
All characteristics			
Both sexes	-0.0004770	13,162	0.76
Male	-0.0010250	13,162	0.76
Female	-0.0008921	13,162	0.76

Table C-6. **SIPP Generalized Variance Parameters for Estimates Using Panel Weights From the 1990 Longitudinal Panel File**

Characteristics	a	b	f
Persons			
Total			
All characteristics			
Both sexes	-0.0000985	22,724	1.00
Male	-0.0002038	22,724	1.00
Female	-0.0001908	22,724	1.00
White			
All characteristics			
Both sexes	-0.0001093	25,185	1.05
Male	-0.0002259	25,185	1.05
Female	-0.0002115	25,185	1.05
Black			
All characteristics			
Both sexes	-0.0002202	6,076	0.52
Male	-0.0004733	6,076	0.52
Female	-0.0004118	6,076	0.52
Hispanic			
All characteristics			
Both sexes	-0.0002931	6,076	0.52
Male	-0.0005864	6,076	0.52
Female	-0.0008596	6,076	0.52

Table C-7. **SIPP Generalized Variance Parameters for Estimates Using the 1990 Calendar Year Weights From the 1990 Longitudinal Panel File**

Characteristics	a	b	f
Persons			
Total			
All characteristics			
Both sexes	-0.0000882	20,356	0.95
Male	-0.0001826	20,356	0.95
Female	-0.0001709	20,356	0.95
White			
All characteristics			
Both sexes	-0.0000979	22,560	1.00
Male	-0.0002024	22,560	1.00
Female	-0.0001894	22,560	1.00
Black			
All characteristics			
Both sexes	-0.0001972	5,443	0.49
Male	-0.0004240	5,443	0.49
Female	-0.0003689	5,443	0.49
Hispanic			
All characteristics			
Both sexes	-0.0002626	5,443	0.49
Male	-0.0005253	5,443	0.49
Female	-0.0007700	5,443	0.49

Table C-8. **SIPP Generalized Variance Parameters for Estimates Using the 1991 Calendar Year Weights From the 1990 Longitudinal Panel File**

Characteristics	a	b	f
Persons			
Total			
All characteristics			
Both sexes	-0.0000916	21,140	0.96
Male	-0.0001896	21,140	0.96
Female	-0.0001775	21,140	0.96
White			
All characteristics			
Both sexes	-0.0001016	23,429	1.02
Male	-0.0002102	23,429	1.02
Female	-0.0001967	23,429	1.02
Black			
All characteristics			
Both sexes	-0.0002048	5,652	0.50
Male	-0.0004403	5,652	0.50
Female	-0.0003831	5,652	0.50
Hispanic			
All characteristics			
Both sexes	-0.0002727	5,652	0.50
Male	-0.0005455	5,652	0.50
Female	-0.0007996	5,652	0.50

Table C-9. **SIPP Generalized Variance Parameters for Estimates Using Weights From the 1991 Cross-Sectional Panel File**

Characteristics	a	b	f
Persons			
Total or White			
All characteristics			
Both sexes	-0.0001134	27,327	1.10
Male	-0.0002334	27,327	1.10
Female	-0.0002203	27,327	1.10
Black			
All characteristics			
Both sexes	-0.0003441	10,110	0.67
Male	-0.0007350	10,110	0.67
Female	-0.0006468	10,110	0.67

Table C-10. **Standard Errors of Estimated Numbers of Persons**

[In thousands]

Size of estimate	Standard error
200	67
300	83
600	117
1,000	150
2,000	212
3,000	259
5,000	333
8,000	419
10,000	466
13,000	528
15,000	565
17,000	598
22,000	672
26,000	724
30,000	770
50,000	943
80,000	1,090
100,000	1,135
130,000	1,136
150,000	1,092
180,000	948
200,000	778
230,000	126
230,500	67

Table C-11. **Standard Errors of Estimated Percentages of Persons**

Base of estimated percentage (thousands)	Estimated percentages					
	1 or 99	2 or 98	5 or 95	10 or 90	25 or 75	50
200	3.4	4.7	7.3	10.1	14.6	16.9
300	2.7	3.9	6.0	8.3	11.9	13.8
600	1.9	2.7	4.2	5.8	8.4	9.7
1,000	1.5	2.1	3.3	4.5	6.5	7.5
2,000	1.1	1.5	2.3	3.2	4.6	5.3
3,000	0.9	1.2	1.9	2.6	3.8	4.4
5,000	0.7	0.9	1.5	2.0	2.9	3.4
8,000	0.5	0.7	1.2	1.6	2.3	2.7
10,000	0.5	0.7	1.0	1.4	2.1	2.4
13,000	0.4	0.6	0.9	1.3	1.8	2.1
15,000	0.4	0.5	0.8	1.2	1.7	1.9
17,000	0.4	0.5	0.8	1.1	1.6	1.8
22,000	0.3	0.4	0.7	1.0	1.4	1.6
26,000	0.3	0.4	0.6	0.9	1.3	1.5
30,000	0.3	0.4	0.6	0.8	1.2	1.4
50,000	0.2	0.3	0.5	0.6	0.9	1.1
80,000	0.2	0.2	0.4	0.5	0.7	0.8
100,000	0.1	0.2	0.3	0.5	0.7	0.8
130,000	0.1	0.2	0.3	0.4	0.6	0.7
150,000	0.1	0.2	0.3	0.4	0.5	0.6
180,000	0.1	0.2	0.2	0.3	0.5	0.6
200,000	0.1	0.1	0.2	0.3	0.5	0.5
230,000	0.1	0.1	0.2	0.3	0.4	0.5
230,500	0.1	0.1	0.2	0.3	0.4	0.5